

REMARKS

Reconsideration of the subject application is requested in view of the foregoing amendments and the following remarks.

The amendments to the specification are to correct readily discernible typographical errors. No new matter is added.

The search performed by the Examiner in the course of substantively examining the claims is appreciated.

Claims 1-7 are pending. In this paper, all the claims remain unchanged.

Claims 1-5 stand rejected for alleged obviousness from a combination of Park '390 and Takeda '387. This rejection is traversed.

Applicant first points out that, although Park '390 appears on the Examiner's Form 892 accompanying the subject Office action, Park '390 in fact was first cited by the Applicant (see Form 1449 accompanying Applicant's IDS of July 27, 2005). Therefore, it is appropriate that Park '390 be noted, on any patent arising from this application, as a reference cited by the Applicant, not by the Examiner. Appropriate corrective action to this end is requested.

Further in this regard, Applicant also points out that the Suzuki '301 patent, the Ishizuya '932 patent, and the Takeda JP '387 patent document appearing on the Examiner's Form 892 were in fact first cited by the Applicant on the Form 1449 of July 27, 2005. Therefore, it is appropriate that Suzuki '301, Ishizuya '932, and Takeda '387 be noted, on any patent arising from this application, as references cited by the Applicant, not by the Examiner. Appropriate corrective action to this end is requested.

Claim 1 is directed to a three-dimensional structure element that comprises a substrate and three-dimensional structures arranged in a predetermined effective area on the substrate. The three-dimensional structures have space portions, which are formed by removing a sacrificial layer, between the three-dimensional structures and the substrate. On the substrate, a dummy area is arranged to surround the effective area. Dummy structures are arranged in the dummy area, and the dummy structures have space portions, which are formed by removing a sacrificial layer, between the dummy structures and the substrate.

Applicant agrees with the statement on page 2 in the Office action that Park '390 does not disclose a dummy area surrounding an effective area, does not disclose dummy structures arranged in the dummy area, and does not disclose dummy structures having space portions,

located between the dummy structures and the substrate and formed by removing a sacrificial layer. But, contrary to the contention in the Office action, Takeda '387 does not fulfill these deficiencies of Park '390. According to the abstract of Takeda '387 (the only portion of this reference that is in English), the items 5 are not the instantly claimed "dummy area"; rather, the items 5 are dummy chips that are placed around the periphery of the wafer 1. Each dummy chip 5 includes an oxide film 6 formed on the surface of the wafer 1. Formed over the oxide film 6 is an Al-Si "electrode" 7, and formed over the Al-Si electrode 7 is a passivation film 8. Thus, there is no indication that the dummy chips 5 of Takeda '387 includes space portions. There is also no indication that Takeda '387 teaches removing a sacrificial layer for any purpose. Therefore, claim 1 is not obvious from any conceivable combination of Park '390 and Takeda '387.

Further with respect to claim 1, Applicant points out that item 31 in Takeda '387 is not a space portion, contrary to the contention on page 2 of the Office action. Item 31 is a dicing line, which is not formed by removing a sacrificial layer.

It is also pointed out that, in view of the foregoing and contrary to the contention on page 3 of the Office action, the skilled person would not have incorporated the Takeda structure in the Park device for protecting the inside structure from dry etching or other heating process. In fact, there is no indication that the Takeda and the Park device processes can be combined for any practical purpose.

Claim 2 depends from claim 1 and thus includes all the features recited in claim 1, and hence is properly allowable over Park '390 and Takeda '387 for all the reasons discussed above pertaining to claim 1. In addition, claim 2 presents an additional feature to be added to the combination of claim 1, namely that a portion of the dummy structures opposed to the substrate is formed in a same shape as the three-dimensional structures. It is respectively pointed out that the examiner appears to misunderstand items 2 and 5 in Takeda '387 as being normal chips. They are not. The chips 2 and 5 are placed around the periphery of the wafer and hence have respective shapes that are not the same as normal chips on the wafer because respective portions of the chips 2 and 5 are missing as a result of the edge of the wafer.

Claim 3 depends from claim 1 and thus includes all the features recited in claim 1, and hence is properly allowable over Park '390 and Takeda '387 for all the reasons discussed above pertaining to claim 1. In addition, claim 3 presents an additional feature to be added to the combination of claim 1, namely that the dummy structures have columns for fixing at least one

section thereof to the substrate. The configuration disclosed in Takeda '387 is not understood to be a three-dimensional structure formed by removing a sacrificial layer, and hence the Takeda structure is not understood to include columns.

Claim 4 depends from claim 1 and thus includes all the features recited in claim 1, and hence is properly allowable over Park '390 and Takeda '387 for all the reasons discussed above pertaining to claim 1. In addition, claim 4 presents an additional feature to be added to the combination of claim 1, namely that the dummy structures have a thin film covering the dummy area and plural columns arranged between the thin film and the substrate. As discussed above regarding claim 3, the Takeda structure is not understood to include columns.

Claim 5 is directed to an optical switch that comprises an optical waveguide substrate and a three-dimensional element substrate including displaceable reflecting mirrors. The three-dimensional structure element substrate has a substrate and three-dimensional structures arranged in a predetermined effective area on the substrate. The three-dimensional structures include the reflecting mirrors and displacement portions on which the reflecting mirrors are placed, and the displacement portions have space portions, which are formed by removing a sacrificial layer, between the displacement portions and the substrate. On the substrate, a dummy area is provided to surround the effective area. Dummy structures are arranged in the dummy area, and the dummy structures have space portions, which are formed by removing a sacrificial layer, between the dummy structures and the substrate.

As noted above, the Office action admits that Park '390 does not disclose a dummy area surrounding an effective area, does not disclose dummy structures arranged in the dummy area, and does not disclose dummy structures having space portions, located between the dummy structures and the substrate and formed by removing a sacrificial layer. Also as noted above, Takeda '387 does not fulfill these deficiencies of Park '390. In addition, claim 5 requires an optical waveguide substrate (see specification page 22, lines 13-23). Contrary to the contention in the Office action, Park '390 does not disclose or suggest an optical waveguide substrate, and is not understood to disclose anything concerning a waveguide or waveguides. Furthermore, the dummy areas 5 in Takeda are not the same structures as claimed because, among various reasons, they do not have space portions and are not formed by removing a sacrificial layer.

Further with respect to certain contentions on page 4 of the Office action regarding Park and Takeda, Applicant points out that item 31 in Takeda is not understood to be a "space portion . . . formed by removing a sacrificial layer."

Therefore, claim 5 is properly allowable over any combination of Park '390 and Takeda '387.

Claim 6 stands rejected for alleged anticipation by Patel '635. This rejection is traversed.

First, the alleged statutory basis (35 U.S.C. §102(b)) of the rejection is questioned. It appears that the Examiner may have intended the basis to be 35 U.S.C. §102(e)). Clarification is requested.

Claim 6 is directed to a micro device that comprises displaceable thin film three-dimensional structures. The micro device has a substrate and the thin film three-dimensional structures are arranged in a predetermined effective area on the substrate. The thin film three-dimensional structures have space portions, formed by removing a sacrificial layer, between the thin film three-dimensional structures and the substrate. On the substrate, a dummy area is arranged to surround the effective area. Dummy structures made of a thin film are arranged in the dummy area. The dummy structures have space portions, formed by removing a sacrificial layer, between the dummy structures and the substrate.

Patel '635 is not understood to teach or suggest anything concerning dummy areas or dummy structures. Furthermore, contrary to the contention in the Office action, items 3a-3d in Patel '635 are not dummy areas; rather, they simply are die areas. Col. 11, line 21. Also, the die areas 3a-3d do not surround an effective area as claimed. Furthermore, there is nothing in Patel '635 providing any suggestion of dummy areas or how they would be configured, and certainly no suggestion of configuring them as claimed.

Therefore, claim 6 is properly allowable over Patel 635.

Claim 7 stands rejected for alleged anticipation by Yagi '750. This rejection is traversed.

It is first pointed out that Yagi '750 does not appear on the Examiner's Form 892, and does not appear on Applicant's Form 1449. Clarification and correction are requested.

Claim 7 is directed to a method of manufacturing a three-dimensional structure element. One step involves forming a sacrificial layer and predetermined thin film three-dimensional structures in a predetermined effective area on a substrate and forming a sacrificial layer and predetermined thin film dummy structures in a dummy area surrounding the effective area.

Another step involves removing the sacrificial layers in the effective area and the dummy area with a dry process.

In response to this rejection, it is pointed out that there is no perceptible disclosure or suggestion in Yagi of forming dummy structures having any configuration, whether formed by a sacrificial layer or not.

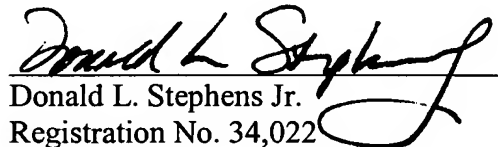
Therefore, all the pending claims are in condition for allowance, and early action to such end is requested.

Applicant is entitled to an interview at this stage of prosecution. If any issues remain after consideration and entry of this paper, the Examiner is requested to contact the undersigned to schedule a telephonic interview. If the Examiner does not contact the undersigned and issues a second Office action, the undersigned rightfully will regard such non-contact as an acquiescence by the Examiner to grant an interview as a matter of right after the second action.

Respectfully submitted,

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